

158631
Environmental
Resources
Management, Inc.

3140 Chapparral Drive, SW
Suite 201
Roanoke, VA 24018
(540) 776-3545
(540) 776-8530 (fax)

12 December 1995

RECEIVED

DEC 15 1995

WESTERN RESPONSE
SECTION

Mr. Jeffrey A. Dodd
On-Scene Coordinator - USEPA Region III
303 Methodist Building
11th and Chapline Streets
Wheeling, West Virginia 26003

RE: Disposal of Soil and Corroded Drum, Virginia Scrap Iron and
Metal Company, Roanoke Avenue Site, Roanoke, Virginia,
Docket No. III-95-09-DC



ERM

Dear Jeff:

As we discussed earlier today, ERM is in the process of coordinating the disposal of the corroded, crushed remains of a metal drum and moist, gray-colored soil formerly contained in the drum which were discovered during removal activities at the Site. The drum remains were uncovered by ERM-EnviroClean personnel during excavation activities on 19 October 1995. As the crushed drum was uncovered, moist, gray-colored soil was observed within and around the drum remains. ERM-EnviroClean personnel shoveled all of the gray-colored soil into a new, clean 55-gallon DOT-approved steel drum and placed the empty remains of the crushed partial drum in a DOT-approved drum overpack. ERM personnel collected a sample of the moist gray-colored soil (sample S-1) and submitted it to ETS Analytical, Inc. in Roanoke, Virginia for full TCLP analyses.

On 7 November 1995, ERM received the TCLP analytical results for sample S-1. Concentrations of barium (1.26 mg/L), cadmium (0.054 mg/L), lead (0.18 mg/L), and selenium (0.007 mg/L) were detected in the sample; however, these concentrations were well below the regulatory levels for these metals. The sample did not exhibit any detectable concentrations of the remaining metals (arsenic, chromium, mercury, and silver), volatile organic compounds, semi-volatile organic compounds, pesticides, or herbicides. The sample was not ignitable, reactive, or corrosive. A copy of the laboratory analytical report for sample S-1 is included as Attachment 1.

ERM is coordinating the disposal of the soil with the Maplewood Facility of Chambers Waste Systems of Virginia. This is the facility that accepted the lead-impacted soil/material for disposal during the removal activities at the Site. Following the disposal of the soil, ERM proposes for Virginia Scrap Iron & Metal Company to use the 55-

A member of the Environmental
Resources Management Group

AR100929

Mr. Jeffrey A. Dodd
EC587.00.01
12 December 1995
Page 2

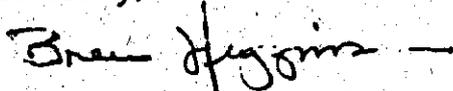
Environmental
Resources
Management, Inc.

gallon steel drum that contained the soil, as well as the corroded drum remains, for recycled metal. According to our telephone conversation today, this approach is acceptable to the USEPA. We anticipate that the disposal of the soil will take place this week.

With regards to the decontamination water containerized at the Site, the metals concentrations exceeded the City of Roanoke's discharge criteria and could not be released to the POTW. As a result, we are arranging for Four Seasons Environmental of Greensboro, North Carolina to transport the water to Four Seasons' Patton Avenue waste water treatment facility in Greensboro. We expect the water to be picked up on a "milk run" with the next two to three weeks. Based on this schedule, we expect to have all of the disposal information in hand and the Removal Completion Report completed for your review by mid-January 1996.

Please do not hesitate to contact me directly if you have any questions regarding this letter.

Sincerely,



Bren Huggins, P.G., P.Hg.
Branch Manager and Associate

Attachment 1: Laboratory Analytical Report for Sample S-1

cc: Mr. Samuel Golden, Virginia Scrap Iron and Metal Company
Mr. Charles L. Williams, Gentry, Locke, Rakes & Moore

AR100930

A member of the Environmental
Resources Management Group

Attachment 1
Laboratory Analytical Report for
Sample S-1



A subsidiary of ETS International, Inc.

Environmental Resources Management
3140 Chaparral Dr., Ste. 201
Roanoke, VA 24018
ATTN: Mr. Ross Miller

Re: Laboratory Analysis
ETSAS Client No. 10660
VA Scrap Removal Action

REPORT DATE/NUMBER: November 7, 1995 / 4

ANALYSIS FOR: Waste Characteristics

METHOD OF ANALYSIS: SW 846 Method 1311, 1010, 6010A, 7470, 8080, 8150, 8260, 8270,
9045, 7.3

SAMPLE ANALYSIS DATA

CLIENT ID: 025433/S-1
MATRIX: SOIL
COLLECTION DATE: 10/19/95
OTHER ID: EC587.00.01
DESCRIPTION: VA SCRAP-REMOVAL ACTION/S-1

LAB ID: 186719
COLLECTED BY: R. MILLER
DATE RECEIVED: 10/19/95
TIME COLLECTED: 1130

VOLATILE ORGANIC COMPOUNDS BY GC/MS:

1,1-Dichloroethene, TCLP _____ < 0.005 mg/l
↳Analysis Date: 10/25/95 by: GAM Run ID: 102595VOA
↳Method: GC/MS, USEPA Method 8260; Det Limit= 0.005 mg/l
↳Comments: The Regulatory Level for this compound is 0.7 mg/l.

1,2-Dichloroethane, TCLP _____ < 0.025 mg/l
↳Analysis Date: 10/25/95 by: GAM Run ID: 102595VOA
↳Method: GC/MS, USEPA Method 8260; Det Limit= 0.025 mg/l
↳Comments: The Regulatory Level for this compound is 0.5 mg/l.

1,4-Dichlorobenzene, TCLP _____ < 0.025 mg/l
↳Analysis Date: 10/25/95 by: GAM Run ID: 102595VOA
↳Method: GC/MS, USEPA Method 8260; Det Limit= 0.025 mg/l
↳Comments: The Regulatory Level for this compound is 7.5 mg/l.

REPORT CONTINUED ON NEXT PAGE



SAMPLE ANALYSIS DATA

CLIENT ID: 025433/S-1 • LAB ID: 186719 (continued)

2-Butanone, TCLP _____ < 0.010 mg/l
↳ Analysis Date: 10/25/95 by: GAM Run ID: 102595VOA
↳ Method: GC/MS, USEPA Method 8260; Det Limit= 0.010 mg/l
↳ Comments: The Regulatory Level for this compound is 200 mg/l.

Benzene, TCLP _____ < 0.025 mg/l
↳ Analysis Date: 10/25/95 by: GAM Run ID: 102595VOA
↳ Method: GC/MS, USEPA Method 8260; Det Limit= 0.010 mg/l
↳ Comments: The Regulatory Level for this compound is 5.0 mg/l.

Carbon Tetrachloride, TCLP _____ < 0.005 mg/l
↳ Analysis Date: 10/25/95 by: GAM Run ID: 102595VOA
↳ Method: GC/MS, USEPA Method 8260; Det Limit= 0.005 mg/l
↳ Comments: The Regulatory Level for this compound is 0.5 mg/l.

Chlorobenzene, TCLP _____ < 0.025 mg/l
↳ Analysis Date: 10/25/95 by: GAM Run ID: 102595VOA
↳ Method: GC/MS, USEPA Method 8260; Det Limit= 0.025 mg/l
↳ Comments: The Regulatory Level for this compound is 100 mg/l.

Chloroform, TCLP _____ < 0.005 mg/l
↳ Analysis Date: 10/25/95 by: GAM Run ID: 102595VOA
↳ Method: GC/MS, USEPA Method 8260; Det Limit= 0.005 mg/l
↳ Comments: The Regulatory Level for this compound is 6.0 mg/l.

Tetrachloroethene, TCLP _____ < 0.025 mg/l
↳ Analysis Date: 10/25/95 by: GAM Run ID: 102595VOA
↳ Method: GC/MS, USEPA Method 8260; Det Limit= 0.025 mg/l
↳ Comments: The Regulatory Level for this compound is 0.7 mg/l.

Trichloroethene, TCLP _____ < 0.025 mg/l
↳ Analysis Date: 10/25/95 by: GAM Run ID: 102595VOA
↳ Method: GC/MS, USEPA Method 8260; Det Limit= 0.025 mg/l
↳ Comments: The Regulatory Level for this compound is 0.5 mg/l.

Vinyl Chloride, TCLP _____ < 0.010 mg/l
↳ Analysis Date: 10/25/95 by: GAM Run ID: 102595VOA
↳ Method: GC/MS, USEPA Method 8260; Det Limit= 0.010 mg/l
↳ Comments: The Regulatory Level for this compound is 0.2 mg/l.

SURROGATE RECOVERY RESULTS:

Surrogate: Bromofluorobenzene	↳ Recovery: 94.5	QAO: 74-1218
Surrogate: Dibromofluoromethane	↳ Recovery: 95.6	QAO: 80-1208
Surrogate: Toluene-d8	↳ Recovery: 98.1	QAO: 81-1178

REPORT CONTINUED ON NEXT PAGE

AR100933



SAMPLE ANALYSIS DATA

CLIENT ID: 025433/S-1 • LAB ID: 186719 (continued)

SEMI-VOLATILE RESULTS BY GC/MS:

- 1,4-Dichlorobenzene, TCLP _____ < 0.020 mg/l
↳Analysis Date: 10/31/95 by: MRC Run ID: 103195BBNA
↳Method: GC/MS, USEPA Method 8270; Det Limit= 0.020 mg/l
↳Comments: Low acid surrogate & Recovery due to complex sample matrix.
- 2,4,5-Trichlorophenol, TCLP _____ < 0.040 mg/l
↳Analysis Date: 10/31/95 by: MRC Run ID: 103195BBNA
↳Method: GC/MS, USEPA Method 8270; Det Limit= 0.040 mg/l
↳Comments: Low acid surrogate & Recovery due to complex sample matrix.
- 2,4,6-Trichlorophenol, TCLP _____ < 0.040 mg/l
↳Analysis Date: 10/31/95 by: MRC Run ID: 103195BBNA
↳Method: GC/MS, USEPA Method 8270; Det Limit= 0.040 mg/l
↳Comments: Low acid surrogate & Recovery due to complex sample matrix.
- 2,4-Dinitrotoluene, TCLP _____ < 0.040 mg/l
↳Analysis Date: 10/31/95 by: MRC Run ID: 103195BBNA
↳Method: GC/MS, USEPA Method 8270; Det Limit= 0.040 mg/l
↳Comments: Low acid surrogate & Recovery due to complex sample matrix.
- 2-Methylphenol, TCLP _____ < 0.040 mg/l
↳Analysis Date: 10/31/95 by: MRC Run ID: 103195BBNA
↳Method: GC/MS, USEPA Method 8270; Det Limit= 0.040 mg/l
↳Comments: Low acid surrogate & Recovery due to complex sample matrix.
- 3 & 4-Methylphenol, TCLP _____ < 0.040 mg/l
↳Analysis Date: 10/31/95 by: MRC Run ID: 103195BBNA
↳Method: GC/MS, USEPA Method 8270; Det Limit= 0.040 mg/l
↳Comments: Low acid surrogate & Recovery due to complex sample matrix.
- Hexachlorobenzene, TCLP _____ < 0.040 mg/l
↳Analysis Date: 10/31/95 by: MRC Run ID: 103195BBNA
↳Method: GC/MS, USEPA Method 8270; Det Limit= 0.040 mg/l
↳Comments: Low acid surrogate & Recovery due to complex sample matrix.
- Hexachlorobutadiene, TCLP _____ < 0.020 mg/l
↳Analysis Date: 10/31/95 by: MRC Run ID: 103195BBNA
↳Method: GC/MS, USEPA Method 8270; Det Limit= 0.020 mg/l
↳Comments: Low acid surrogate & Recovery due to complex sample matrix.

REPORT CONTINUED ON NEXT PAGE

AR100934



SAMPLE ANALYSIS DATA

CLIENT ID: 025433/S-1 • LAB ID: 186719 (continued)

Hexachloroethane, TCLP _____ < 0.040 mg/l
↳Analysis Date: 10/31/95 by: MRC Run ID: 103195BBNA
↳Method: GC/MS, USEPA Method 8270; Det Limit= 0.040 mg/l
↳Comments: Low acid surrogate % Recovery due to complex sample matrix.

Nitrobenzene, TCLP _____ < 0.040 mg/l
↳Analysis Date: 10/31/95 by: MRC Run ID: 103195BBNA
↳Method: GC/MS, USEPA Method 8270; Det Limit= 0.040 mg/l
↳Comments: Low acid surrogate % Recovery due to complex sample matrix.

Pentachlorophenol, TCLP _____ < 0.080 mg/l
↳Analysis Date: 10/31/95 by: MRC Run ID: 103195BBNA
↳Method: GC/MS, USEPA Method 8270; Det Limit= 0.080 mg/l
↳Comments: Low acid surrogate % Recovery due to complex sample matrix.

Pyridine, TCLP _____ < 0.040 mg/l
↳Analysis Date: 10/31/95 by: MRC Run ID: 103195BBNA
↳Method: GC/MS, USEPA Method 8270; Det Limit= 0.040 mg/l
↳Comments: Low acid surrogate % Recovery due to complex sample matrix.

SURROGATE RECOVERY RESULTS:

Surrogate: 1,2-Dichlorobenzene-d4	% Recovery: 62.9	QAO: 20-130%
Surrogate: 2,4,6-Tribromophenol	% Recovery: 43.5	QAO: 19-122%
Surrogate: 2-Chlorophenol-d4	% Recovery: 40.2	QAO: 20-130%
Surrogate: 2-Fluorobiphenyl	% Recovery: 77.1	QAO: 30-115%
Surrogate: 2-Fluorophenol	% Recovery: 16.2	QAO: 25-121%
Surrogate: Nitrobenzene-d5	% Recovery: 78.4	QAO: 23-120%
Surrogate: Phenol-d5	% Recovery: 25.2	QAO: 24-113%
Surrogate: Terphenyl-d14	% Recovery: 65.6	QAO: 18-137%

METALS/ELEMENTS RESULTS:

Arsenic, TCLP _____ < 0.005 mg/l
↳Analysis Date: 10/25/95 by: JW Run ID: 102595TR
↳Method: SW-846 Method 6010A; Det Limit= 0.005 mg/l
↳Comments: The Regulatory Level for Arsenic, TCLP is 5.0 mg/l.

Barium, TCLP _____ 1.26 mg/l
↳Analysis Date: 10/25/95 by: JW Run ID: 102595TR
↳Method: SW-846 Method 6010A; Det Limit= 0.002 mg/l
↳Comments: The Regulatory Level for Barium, TCLP is 100.0 mg/l.

REPORT CONTINUED ON NEXT PAGE

AR100935



SAMPLE ANALYSIS DATA

CLIENT ID: 025433/S-1 • LAB ID: 186719 (continued)

Cadmium, TCLP _____ 0.054 mg/l

↳Analysis Date: 10/25/95 by: JW Run ID: 102595TR

↳Method: SW-846 Method 6010A; Det Limit= 0.001 mg/l

↳Comments: The Regulatory Level for Cadmium, TCLP is 1.0 mg/l.

Chromium, TCLP _____ < 0.010 mg/l

↳Analysis Date: 10/25/95 by: JW Run ID: 102595TR

↳Method: SW-846 Method 6010A; Det Limit= 0.005 mg/l

↳Comments: The Regulatory Level for Chromium, TCLP is 5.0 mg/l.

Lead, TCLP _____ 0.18 mg/l

↳Analysis Date: 10/25/95 by: JW Run ID: 102595TR

↳Method: SW-846 Method 6010A; Det Limit= 0.005 mg/l

↳Comments: The Regulatory Level for Lead, TCLP is 5.0 mg/l.

Mercury, TCLP _____ < 0.002 mg/l

↳Analysis Date: 10/24/95 by: MG Run ID: 102495CV

↳Method: SW-846 Method 7470; Det Limit= 0.002 mg/l

↳Comments: The Regulatory Level for Mercury, TCLP is 0.2 mg/l.

Selenium, TCLP _____ 0.007 mg/l

↳Analysis Date: 10/25/95 by: JW Run ID: 102595TR

↳Method: SW-846 Method 6010A; Det Limit= 0.005 mg/l

↳Comments: The Regulatory Level for Selenium, TCLP is 1.0 mg/l.

Silver, TCLP _____ < 0.005 mg/l

↳Analysis Date: 10/25/95 by: JW Run ID: 102595TR

↳Method: SW-846 Method 6010A; Det Limit= 0.005 mg/l

↳Comments: The Regulatory Level for Silver, TCLP is 5.0 mg/l.

ORGANIC ANALYTES:

2,4,5-TP (Silvex), TCLP _____ < 0.02 mg/l

↳Analysis Date: 11/01/95 by: SS Run ID: HER110195

↳Method: SW 846 Method 8150; Det Limit= Not Applicable

2,4-D, TCLP _____ < 0.2 mg/l

↳Analysis Date: 11/01/95 by: SS Run ID: HER110195

↳Method: SW 846 Method 8150; Det Limit= Not Applicable

Chlordane, TCLP _____ < 0.005 mg/l

↳Analysis Date: 10/28/95 by: SS Run ID: PES102895

↳Method: SW 846 Method 8080; Det Limit= Not Applicable

REPORT CONTINUED ON NEXT PAGE



SAMPLE ANALYSIS DATA

CLIENT ID: 025433/S-1 • LAB ID: 186719 (continued)

Endrin, TCLP _____ < 0.001 mg/l
↳ Analysis Date: 10/28/95 by: SS Run ID: PES102895
↳ Method: SW 846 Method 8080; Det Limit= Not Applicable

Heptachlor Epoxide, TCLP _____ < 0.006 mg/l
↳ Analysis Date: 10/28/95 by: SS Run ID: PES102895
↳ Method: SW 846 Method 8080; Det Limit= Not Applicable

Heptachlor, TCLP _____ < 0.0005 mg/l
↳ Analysis Date: 10/28/95 by: SS Run ID: PES102895
↳ Method: SW 846 Method 8080; Det Limit= Not Applicable

Methoxychlor, TCLP _____ < 0.02 mg/l
↳ Analysis Date: 10/28/95 by: SS Run ID: PES102895
↳ Method: SW 846 Method 8080; Det Limit= Not Applicable

Toxaphene, TCLP _____ < 0.01 mg/l
↳ Analysis Date: 10/28/95 by: SS Run ID: PES102895
↳ Method: SW 846 Method 8080; Det Limit= Not Applicable

gamma-BHC (lindane), TCLP _____ < 0.0005 mg/l
↳ Analysis Date: 10/28/95 by: SS Run ID: PES102895
↳ Method: SW 846 Method 8080; Det Limit= Not Applicable

ROUTINE LABORATORY RESULTS:

Corrosivity (by pH) _____ 6.95
↳ Analysis Date: 10/27/95 by: BCL Run ID: ICR102795
↳ Method: SW 846 Method 9045; Det Limit= Not Applicable

Ignitability _____ > 200 DEG F
↳ Analysis Date: 10/23/95 by: BCL Run ID: ICR102395
↳ Method: SW 846 Method 1010; Det Limit= Not Applicable

Reactivity (CN/S) _____ Negative
↳ Analysis Date: 10/23/95 by: BCL Run ID: ICR102395
↳ Method: SW 846 Method 7.3; Det Limit= Not Applicable

REPORT CONTINUED ON NEXT PAGE



Quality Assurance performed on the above data is presented on the following page(s).
If we may be of further assistance, please contact us at any time.

Sincerely,
ETS ANALYTICAL SERVICES, INC.
Chris Southworth
Chris Southworth, Project Manager

AR100938

QUALITY ASSURANCE SUMMARY

CALIBRATION VERIFICATION

ANALYTE	UNITS	TYPE	TRUE	FOUND	% REC	QAO	RUN ID
1,1-Dichloroethene	ug/l	CCV09	50.0	54.4	108.8	75-125%	102595VOA
1,2-Dichloroethane	ug/l	CCV09	50.0	47.8	95.6	75-125%	102595VOA
1,4-Dichlorobenzene	ug/l	CCV09	50.0	49.3	98.6	75-125%	102595VOA
2-Butanone	ug/l	CCV09	50.0	33.2	66.4	50-150%	102595VOA
Benzene	ug/l	CCV09	50.0	51.4	102.8	75-125%	102595VOA
Carbon Tetrachloride	ug/l	CCV09	50.0	52.7	105.4	75-125%	102595VOA
Chlorobenzene	ug/l	CCV09	50.0	52.9	105.8	75-125%	102595VOA
Chloroform	ug/l	CCV09	50.0	47.7	95.4	75-125%	102595VOA
Tetrachloroethene	ug/l	CCV09	50.0	51.1	102.2	75-125%	102595VOA
Trichloroethene	ug/l	CCV09	50.0	49.3	98.6	75-125%	102595VOA
Vinyl Chloride	ug/l	CCV09	50.0	58.0	116.0	75-125%	102595VOA
1,4-Dichlorobenzene	ug/l	CCV06	50.0	53.7	107.4	75-125%	103195BBNA
2,4,5-Trichlorophenol	ug/l	CCV06	50.0	48.9	97.8	75-125%	103195BBNA
2,4,6-Trichlorophenol	ug/l	CCV06	50.0	49.0	98.0	75-125%	103195BBNA
2,4-Dinitrotoluene	ug/l	CCV06	50.0	52.9	105.8	75-125%	103195BBNA
2-Methylphenol	ug/l	CCV06	50.0	53.7	107.4	75-125%	103195BBNA
3 & 4-Methylphenol	ug/l	CCV06	50.0	53.3	106.6	75-125%	103195BBNA
Hexachlorobenzene	ug/l	CCV06	50.0	49.0	98.0	75-125%	103195BBNA
Hexachlorobutadiene	ug/l	CCV06	50.0	50.4	100.8	10-200%	103195BBNA
Hexachloroethane	ug/l	CCV06	50.0	59.1	118.2	75-125%	103195BBNA
Nitrobenzene	ug/l	CCV06	50.0	56.1	112.2	75-125%	103195BBNA
Pentachlorophenol	ug/l	CCV06	50.0	57.6	115.2	75-125%	103195BBNA
Pyridine	ug/l	CCV06	50.0	56.2	112.4	10-200%	103195BBNA
Mercury	ug/l	CCV1	2.00	2.20	110.0	80-120%	102495CV
Mercury	ug/l	CCV2	2.00	2.18	109.0	80-120%	102495CV
Mercury	ug/l	CCV3	2.00	1.96	98.0	80-120%	102495CV
Mercury	ug/l	CCV4	2.00	2.07	103.5	80-120%	102495CV
Mercury	ug/l	ICV1	4.90	5.36	109.4	80-120%	102495CV
Mercury	ug/kg	LCSS	12.7	12.4	97.6	80-120%	102495CV

QA Report continued on Next Page



QUALITY ASSURANCE SUMMARY
 Continued

CALIBRATION VERIFICATION

ANALYTE	UNITS	TYPE	TRUE	FOUND	% REC	QAO	RUN ID
Arsenic	ug/l	CCV1	500.0	508.4	101.7	90-110%	102595TR
Barium	ug/l	CCV1	500.0	512.5	102.5	90-110%	102595TR
Cadmium	ug/l	CCV1	500.0	473.3	94.7	90-110%	102595TR
Chromium	ug/l	CCV1	500.0	492.0	98.4	90-110%	102595TR
Lead	ug/l	CCV1	500.0	481.7	96.3	90-110%	102595TR
Selenium	ug/l	CCV1	500.0	517.8	103.6	90-110%	102595TR
Silver	ug/l	CCV1	250.0	262.4	104.9	90-110%	102595TR
Arsenic	ug/l	CCV2	500.0	509.8	102.0	90-110%	102595TR
Barium	ug/l	CCV2	500.0	498.3	99.7	90-110%	102595TR
Cadmium	ug/l	CCV2	500.0	497.2	99.4	90-110%	102595TR
Chromium	ug/l	CCV2	500.0	509.5	101.9	90-110%	102595TR
Lead	ug/l	CCV2	500.0	505.3	101.1	90-110%	102595TR
Selenium	ug/l	CCV2	500.0	510.6	102.1	90-110%	102595TR
Silver	ug/l	CCV2	250.0	262.3	104.9	90-110%	102595TR
Arsenic	ug/l	CCV3	500.0	509.5	101.9	90-110%	102595TR
Barium	ug/l	CCV3	500.0	515.7	103.1	90-110%	102595TR
Cadmium	ug/l	CCV3	500.0	471.5	94.3	90-110%	102595TR
Chromium	ug/l	CCV3	500.0	489.3	97.9	90-110%	102595TR
Lead	ug/l	CCV3	500.0	476.9	95.4	90-110%	102595TR
Selenium	ug/l	CCV3	500.0	517.3	103.5	90-110%	102595TR
Silver	ug/l	CCV3	250.0	262.7	105.1	90-110%	102595TR
Arsenic	ug/l	CCV4	500.0	512.4	102.5	90-110%	102595TR
Barium	ug/l	CCV4	500.0	510.2	102.0	90-110%	102595TR
Cadmium	ug/l	CCV4	500.0	489.2	97.8	90-110%	102595TR
Chromium	ug/l	CCV4	500.0	504.4	100.9	90-110%	102595TR
Lead	ug/l	CCV4	500.0	496.2	99.2	90-110%	102595TR
Selenium	ug/l	CCV4	500.0	517.7	103.5	90-110%	102595TR
Silver	ug/l	CCV4	250.0	263.2	105.3	90-110%	102595TR
Arsenic	ug/l	CCV5	500.0	503.7	100.7	90-110%	102595TR
Barium	ug/l	CCV5	500.0	491.7	98.3	90-110%	102595TR
Cadmium	ug/l	CCV5	500.0	481.3	96.3	90-110%	102595TR

QA Report conti on Next Page

AR100940



QUALITY ASSURANCE SUMMARY
 Continued

CALIBRATION VERIFICATION

ANALYTE	UNITS	TYPE	TRUE	FOUND	% REC	QAO	RUN ID
Chromium	ug/l	CCV5	500.0	498.0	99.6	90-110%	102595TR
Lead	ug/l	CCV5	500.0	486.4	97.3	90-110%	102595TR
Selenium	ug/l	CCV5	500.0	512.5	102.5	90-110%	102595TR
Silver	ug/l	CCV5	250.0	260.2	104.1	90-110%	102595TR
Arsenic	ug/l	CCV6	500.0	508.2	101.6	90-110%	102595TR
Barium	ug/l	CCV6	500.0	498.1	99.6	90-110%	102595TR
Cadmium	ug/l	CCV6	500.0	483.7	96.7	90-110%	102595TR
Chromium	ug/l	CCV6	500.0	502.1	100.4	90-110%	102595TR
Lead	ug/l	CCV6	500.0	486.1	97.2	90-110%	102595TR
Selenium	ug/l	CCV6	500.0	513.3	102.7	90-110%	102595TR
Silver	ug/l	CCV6	250.0	261.3	104.5	90-110%	102595TR
Arsenic	ug/l	CCV7	500.0	506.0	101.2	90-110%	102595TR
Barium	ug/l	CCV7	500.0	490.8	98.2	90-110%	102595TR
Cadmium	ug/l	CCV7	500.0	490.5	98.1	90-110%	102595TR
Chromium	ug/l	CCV7	500.0	509.2	101.8	90-110%	102595TR
Lead	ug/l	CCV7	500.0	497.0	99.4	90-110%	102595TR
Selenium	ug/l	CCV7	500.0	518.7	103.7	90-110%	102595TR
Silver	ug/l	CCV7	250.0	259.7	103.9	90-110%	102595TR
Arsenic	ug/l	CCV8	500.0	504.3	100.9	90-110%	102595TR
Barium	ug/l	CCV8	500.0	494.1	98.8	90-110%	102595TR
Cadmium	ug/l	CCV8	500.0	484.5	96.9	90-110%	102595TR
Chromium	ug/l	CCV8	500.0	503.9	100.8	90-110%	102595TR
Lead	ug/l	CCV8	500.0	486.6	97.3	90-110%	102595TR
Selenium	ug/l	CCV8	500.0	506.0	101.2	90-110%	102595TR
Silver	ug/l	CCV8	250.0	257.9	103.2	90-110%	102595TR
Barium	ug/l	ICSABF	500.0	488.9	97.8	80-120%	102595TR
Cadmium	ug/l	ICSABF	1000.0	911.2	91.1	80-120%	102595TR
Chromium	ug/l	ICSABF	500.0	478.8	95.8	80-120%	102595TR
Lead	ug/l	ICSABF	1000.0	966.5	96.7	80-120%	102595TR
Silver	ug/l	ICSABF	1000	1055	105.5	80-120%	102595TR
Barium	ug/l	ICSABF	500.0	509.7	101.9	80-120%	102595TR

QA Report Continued on Next Page



AR100941

QUALITY ASSURANCE SUMMARY
 Continued

CALIBRATION VERIFICATION

ANALYTE	UNITS	TYPE	TRUE	FOUND	% REC	QAO	RUN ID
Cadmium	ug/l	ICSABI	1000.0	908.3	90.8	80-120%	102595TR
Chromium	ug/l	ICSABI	500.0	476.6	95.3	80-120%	102595TR
Lead	ug/l	ICSABI	1000.0	969.1	96.9	80-120%	102595TR
Silver	ug/l	ICSABI	1000	1078	107.8	80-120%	102595TR
Arsenic	ug/l	ICVI	1000.0	962.1	96.2	90-110%	102595TR
Barium	ug/l	ICVI	500.0	483.8	96.8	90-110%	102595TR
Cadmium	ug/l	ICVI	500.0	477.9	95.6	90-110%	102595TR
Chromium	ug/l	ICVI	500.0	486.6	97.3	90-110%	102595TR
Lead	ug/l	ICVI	1000.0	966.4	96.6	90-110%	102595TR
Selenium	ug/l	ICVI	2000	1959	97.9	90-110%	102595TR
Silver	ug/l	ICVI	1000	1002	100.2	90-110%	102595TR
Arsenic	mg/kg	LCSS	917	1040	113.4	80-120%	102595TR
Barium	mg/kg	LCSS	4.80	5.54	115.4	80-120%	102595TR
Cadmium	mg/kg	LCSS	45.4	41.1	90.5	80-120%	102595TR
Chromium	mg/kg	LCSS	99.6	103.9	104.3	80-120%	102595TR
Lead	mg/kg	LCSS	236.0	228.8	96.9	80-120%	102595TR
Selenium	mg/kg	LCSS	39.2	41.5	105.9	80-120%	102595TR
Silver	mg/kg	LCSS	22.2	23.7	106.6	80-120%	102595TR
Arsenic	ug/l	LCSW	1000.0	990.6	99.1	80-120%	102595TR
Barium	ug/l	LCSW	500.0	482.5	96.5	80-120%	102595TR
Cadmium	ug/l	LCSW	500.0	494.6	98.9	80-120%	102595TR
Chromium	ug/l	LCSW	500.0	506.6	101.3	80-120%	102595TR
Lead	ug/l	LCSW	1000.0	995.2	99.5	80-120%	102595TR
Selenium	ug/l	LCSW	2000	1919	96.0	80-120%	102595TR
Silver	ug/l	LCSW	1000.0	993.7	99.4	80-120%	102595TR





Environmental Resources Management
 Report of 11/07/95
 Page No. 12

QUALITY ASSURANCE SUMMARY
 Continued

BLANKS

ANALYTE	UNITS	TYPE	FOUND	QAO	RUN ID
1,1-Dichloroethene	ug/l	CCB09	<5.00	<5.0 ug/l	102595VOA
1,2-Dichloroethane	ug/l	CCB09	<5.00	<5.0 ug/l	102595VOA
1,4-Dichlorobenzene	ug/l	CCB09	<5.00	<5.0 ug/l	102595VOA
2-Butanone	ug/l	CCB09	<10.0	<10.0 ug/l	102595VOA
Benzene	ug/l	CCB09	<5.00	<5.0 ug/l	102595VOA
Carbon Tetrachloride	ug/l	CCB09	<5.00	<5.0 ug/l	102595VOA
Chlorobenzene	ug/l	CCB09	<5.00	<5.0 ug/l	102595VOA
Chloroform	ug/l	CCB09	<5.00	<5.0 ug/l	102595VOA
Tetrachloroethene	ug/l	CCB09	<5.00	<5.0 ug/l	102595VOA
Trichloroethene	ug/l	CCB09	<5.00	<5.0 ug/l	102595VOA
Vinyl Chloride	ug/l	CCB09	<10.0	<10.0 ug/l	102595VOA
1,4-Dichlorobenzene, TCLP	mg/l	PBWT07	<0.005	<0.005 mg/l	103195BBNA
2,4,5-Trichlorophenol, TCLP	mg/l	PBWT07	<0.010	<0.010 mg/l	103195BBNA
2,4,6-Trichlorophenol, TCLP	mg/l	PBWT07	<0.010	<0.010 mg/l	103195BBNA
2,4-Dinitrotoluene, TCLP	mg/l	PBWT07	<0.010	<0.010 mg/l	103195BBNA
2-Methylphenol, TCLP	mg/l	PBWT07	<0.010	<0.010 mg/l	103195BBNA
3 & 4-Methylphenol, TCLP	mg/l	PBWT07	<0.010	<0.010 mg/l	103195BBNA
Hexachlorobenzene, TCLP	mg/l	PBWT07	<0.010	<0.010 mg/l	103195BBNA
Hexachlorobutadiene, TCLP	mg/l	PBWT07	<0.005	<0.005 mg/l	103195BBNA
Hexachloroethane, TCLP	mg/l	PBWT07	<0.010	<0.010 mg/l	103195BBNA
Nitrobenzene, TCLP	mg/l	PBWT07	<0.010	<0.010 mg/l	103195BBNA
Pentachlorophenol, TCLP	mg/l	PBWT07	<0.020	<0.020 mg/l	103195BBNA
Pyridine, TCLP	mg/l	PBWT07	<0.010	<0.010 mg/l	103195BBNA
Mercury	ug/l	CCB1	<0.200	<0.2 ug/l	102495CV
Mercury	ug/l	CCB2	<0.200	<0.2 ug/l	102495CV
Mercury	ug/l	CCB3	<0.200	<0.2 ug/l	102495CV
Mercury	ug/l	CCB4	<0.200	<0.2 ug/l	102495CV
Mercury	ug/l	ICB1	<0.200	<0.2 ug/l	102495CV

QA Report Continued on Next Page

QUALITY ASSURANCE SUMMARY
 Continued

BLANKS

ANALYTE	UNITS	TYPE	FOUND	QAQ	RUN ID
Mercury	mg/kg	PBS	<0.100	<0.1 mg/kg	102495CV
Mercury	ug/l	PBM	<0.200	<0.2 ug/l	102495CV
Mercury	ug/l	PBN2	<0.200	<0.2 ug/l	102495CV
Arsenic	ug/l	CCB1	<5.00	<5 ug/l	102595TR
Barium	ug/l	CCB1	<2.00	<2 ug/l	102595TR
Cadmium	ug/l	CCB1	<1.00	<1 ug/l	102595TR
Chromium	ug/l	COB1	<5.00	<5 ug/l	102595TR
Lead	ug/l	CCB1	<2.00	<2 ug/l	102595TR
Selenium	ug/l	CCB1	<5.00	<5 ug/l	102595TR
Silver	ug/l	CCB1	<5.00	<5 ug/l	102595TR
Arsenic	ug/l	CCB2	<5.00	<5 ug/l	102595TR
Barium	ug/l	CCB2	<2.00	<2 ug/l	102595TR
Cadmium	ug/l	CCB2	<1.00	<1 ug/l	102595TR
Chromium	ug/l	CCB2	<5.00	<5 ug/l	102595TR
Lead	ug/l	CCB2	<2.00	<2 ug/l	102595TR
Selenium	ug/l	CCB2	<5.00	<5 ug/l	102595TR
Silver	ug/l	CCB2	<5.00	<5 ug/l	102595TR
Arsenic	ug/l	CCB3	<5.00	<5 ug/l	102595TR
Barium	ug/l	CCB3	<2.00	<2 ug/l	102595TR
Cadmium	ug/l	CCB3	<1.00	<1 ug/l	102595TR
Chromium	ug/l	CCB3	<5.00	<5 ug/l	102595TR
Lead	ug/l	CCB3	<2.00	<2 ug/l	102595TR
Selenium	ug/l	CCB3	<5.00	<5 ug/l	102595TR
Silver	ug/l	CCB3	<5.00	<5 ug/l	102595TR
Arsenic	ug/l	CCB4	<5.00	<5 ug/l	102595TR
Barium	ug/l	CCB4	<2.00	<2 ug/l	102595TR
Cadmium	ug/l	CCB4	<1.00	<1 ug/l	102595TR
Chromium	ug/l	CCB4	<5.00	<5 ug/l	102595TR

QA Report Continued on Next Page



ARI00944

QUALITY ASSURANCE SUMMARY
 Continued

BLANKS

ANALYTE	UNITS	TYPE	FOUND	QAO	RUN ID
Lead	ug/l	CCB4	<2.00	<2 ug/l	102595TR
Selenium	ug/l	CCB4	<5.00	<5 ug/l	102595TR
Silver	ug/l	CCB4	<5.00	<5 ug/l	102595TR
Arsenic	ug/l	CCB5	<5.00	<5 ug/l	102595TR
Barium	ug/l	CCB5	<2.00	<2 ug/l	102595TR
Cadmium	ug/l	CCB5	<1.00	<1 ug/l	102595TR
Chromium	ug/l	CCB5	<5.00	<5 ug/l	102595TR
Lead	ug/l	CCB5	<2.00	<2 ug/l	102595TR
Selenium	ug/l	CCB5	<5.00	<5 ug/l	102595TR
Silver	ug/l	CCB5	<5.00	<5 ug/l	102595TR
Arsenic	ug/l	CCB6	<5.00	<5 ug/l	102595TR
Barium	ug/l	CCB6	<2.00	<2 ug/l	102595TR
Cadmium	ug/l	CCB6	<1.00	<1 ug/l	102595TR
Chromium	ug/l	CCB6	<5.00	<5 ug/l	102595TR
Lead	ug/l	CCB6	<2.00	<2 ug/l	102595TR
Selenium	ug/l	CCB6	<5.00	<5 ug/l	102595TR
Silver	ug/l	CCB7	<5.00	<5 ug/l	102595TR
Arsenic	ug/l	CCB7	<5.00	<5 ug/l	102595TR
Barium	ug/l	CCB7	<2.00	<2 ug/l	102595TR
Cadmium	ug/l	CCB7	<1.00	<1 ug/l	102595TR
Chromium	ug/l	CCB7	<5.00	<5 ug/l	102595TR
Lead	ug/l	CCB7	<2.00	<2 ug/l	102595TR
Selenium	ug/l	CCB7	<5.00	<5 ug/l	102595TR
Silver	ug/l	CCB8	<5.00	<5 ug/l	102595TR
Arsenic	ug/l	CCB8	<2.00	<2 ug/l	102595TR
Barium	ug/l	CCB8	<1.00	<1 ug/l	102595TR
Cadmium	ug/l	CCB8	<5.00	<5 ug/l	102595TR
Chromium	ug/l	CCB8	<5.00	<5 ug/l	102595TR

QA Report continued on Next Page



AR100945

QUALITY ASSURANCE SUMMARY
 Continued

BLANKS

ANALYTE	UNITS	TYPE	FOUND	QAO	RUN ID
Lead	ug/l	CCB8	<2.00	<2 ug/l	102595TR
Selenium	ug/l	CCB8	<5.00	<5 ug/l	102595TR
Silver	ug/l	CCB8	<5.00	<5 ug/l	102595TR
Arsenic	ug/l	ICB1	<5.00	<5 ug/l	102595TR
Barium	ug/l	ICB1	<2.00	<2 ug/l	102595TR
Cadmium	ug/l	ICB1	<1.00	<1 ug/l	102595TR
Chromium	ug/l	ICB1	<5.00	<5 ug/l	102595TR
Lead	ug/l	ICB1	<2.00	<2 ug/l	102595TR
Selenium	ug/l	ICB1	<5.00	<5 ug/l	102595TR
Silver	ug/l	ICB1	<5.00	<5 ug/l	102595TR
Arsenic	ug/kg	PBS	<0.500	<1 mg/kg	102595TR
Barium	ug/kg	PBS	<0.200	<0 mg/kg	102595TR
Cadmium	ug/kg	PBS	<0.100	<0 mg/kg	102595TR
Chromium	ug/kg	PBS	<0.500	<0.5 mg/kg	102595TR
Lead	ug/kg	PBS	<0.200	<0 mg/kg	102595TR
Selenium	ug/kg	PBS	<0.500	<1 mg/kg	102595TR
Silver	ug/kg	PBS	<0.500	<1 mg/kg	102595TR
Arsenic	ug/l	PBW	<5.00	<5 ug/l	102595TR
Barium	ug/l	PBW	<2.00	<2 ug/l	102595TR
Cadmium	ug/l	PBW	<1.00	<1 ug/l	102595TR
Chromium	ug/l	PBW	<5.00	<5 ug/l	102595TR
Lead	ug/l	PBW	<2.00	<2 ug/l	102595TR
Selenium	ug/l	PBW	<5.00	<5 ug/l	102595TR
Silver	ug/l	PBW	<5.00	<5 ug/l	102595TR



QUALITY ASSURANCE SUMMARY

Continued

DUPLICATES

LAB ID	ANALYTE	TYPE	SAMPLE	DUP	UNITS	RPD	QAO	RUN ID
186684	Mercury	DUP	<0.200	<0.200	ug/l	NC	≤20 RPD	102495CV
186690	Mercury	DUP	1.3	1.3	ng/kg	0.0	≤20 RPD	102495CV
186719	Mercury	DUP	<2.0	<2.0	ug/l	NC	≤20 RPD	102495CV
186690	Arsenic	DUP	6.9	6.8	ng/kg	0.1	≤20 RPD	102595TR
186690	Barium	DUP	157	149	ng/kg	5.1	≤20 RPD	102595TR
186690	Cadmium	DUP	39.7	40.8	ng/kg	2.8	≤20 RPD	102595TR
186690	Chromium	DUP	118	118	ng/kg	0.7	≤20 RPD	102595TR
186690	Lead	DUP	209	222	ng/kg	5.8	≤20 RPD	102595TR
186690	Selenium	DUP	<0.480	<0.480	mg/kg	NC	≤20 RPD	102595TR
186690	Silver	DUP	<0.480	<0.480	mg/kg	NC	≤20 RPD	102595TR

SPIKES

LAB ID	ANALYTE	TYPE	SAMPLE	SPK	ADDED	REC	QAO	RUN ID
186684	Mercury	MS	<0.200	0.900	1.00	90.0	75-125%	102495CV
186690	Mercury	MS	1.37	1.81	0.480	91.7	75-125%	102495CV
186719	Mercury	MS	<2.00	10.2	10.0	102.0	75-125%	102495CV
186690	Arsenic	MS	6.85	407.8	484.0	82.8	75-125%	102595TR
186690	Barium	MS	156.9	2343	1935	113.0	75-125%	102595TR
186690	Cadmium	MS	39.7	121.8	96.7	84.9	75-125%	102595TR
186690	Chromium	MS	118.4	562.7	484.0	91.8	75-125%	102595TR
186690	Lead	MS	209.5	594.9	484.0	79.6	75-125%	102595TR
186690	Selenium	MS	<0.480	83.7	96.7	86.5	75-125%	102595TR
186690	Silver	MS	<0.480	478.2	484.0	98.8	75-125%	102595TR

QAO: Quality Assurance Objective; REC: Recovery; RPD: Relative Percent Difference; NC: Not calculatable.
 DUP: Duplicate Analysis Result; SPK: Spiked Analysis Result; MS: Matrix SPK; MSD: Matrix SPK Duplicate.
 For Duplicates <5X the Detection Limit (DL), ± DL shall apply for the QAO unless otherwise specified.



AR100947

1 Project W.O. <i>EC587.00.01</i>	2 Sample Concentration	025433
Project Name/Location	<input type="checkbox"/> Low Concentration	
<i>VA Scrap</i>	<input type="checkbox"/> Medium Concentration	3 Ship to:
<i>Poanoke, VA</i>	5 Sampling Personnel Contact	<i>EDU, Inc</i>
4 Sample Matrix	Sampler: <i>P. Miller</i>	<i>3140 Chapman Dr, Ste 201</i>
<input type="checkbox"/> Liquid <input type="checkbox"/> Solid	Project Manager: <i>P. Miller</i>	<i>Poanoke, VA 24018</i>
<input checked="" type="checkbox"/> Other <i>Soil w/Unknown Liq.</i>	Phone No. <i>776-3545</i>	Attn: <i>P. Miller</i>
6 Shipping Information	7 Specify Type of Analyses, Number of Containers, Approx. Volume	
(Name of Carrier)	Analyses / Method Requested	No. of Bottles
(Date Shipped)	<i>TCLP Vol's</i>	
(Airbill Number)	<i>TCLP Semi-Vol's</i>	
8 Sample Location	<i>TCLP Metals</i>	
<i>S-1</i>	<i>TCLP Pesticides</i>	2
	<i>TCLP Herbicides</i>	16 oz
Date: <i>10-19-95</i>	<i>Corrosivity</i>	
Time: <i>11:30</i>	<i>Ignitability</i>	
	<i>Reactivity</i>	
9 Sample Description	10 Special Handling (e.g. Safety Procedures/Hazardous)	
<input type="checkbox"/> Surface Water <input type="checkbox"/> Soil	<i>Standard Turnaround</i>	
<input type="checkbox"/> Ground Water <input type="checkbox"/> Solid		
<input type="checkbox"/> Leachate <input checked="" type="checkbox"/> Other: <i>Soil w/ Unknown Liq.</i>	Additional comments: (Specify data package, rush work, special detection limits, etc.)	
<input type="checkbox"/> Sediment	<i>CLP Data Pkg w/in 30 days</i>	
11 Condition of Samples Received (to be completed by Laboratory Log-in.)		
<input checked="" type="checkbox"/> Samples received intact		
<input checked="" type="checkbox"/> Samples at 4 degrees (C)		Log-In Person's Signature <i>Susan Sigmond</i>
<input checked="" type="checkbox"/> Samples not leaking		
<input checked="" type="checkbox"/> Container numbers match as specified in Item 7		
<input checked="" type="checkbox"/> Container tags match Chain of Custody		
<input checked="" type="checkbox"/> Cooler received with Custody Seals intact	<input checked="" type="checkbox"/> Samples contained within plastic bags	

Copies: White & Yellow copies accompany sample shipment to laboratory. Yellow copy retained by laboratory. White copy to be returned to ERM for files. Pink copy retained by sampler. Gold copy extra copy as needed.

AR100948

